Lesson 0: Introduction

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Course Goals

- Introduce key concepts in the field of Data Structures and Algorithms
- Learn the fundamental theory behind the most commonly used Data Structures and Algorithms
- Demonstrate the importance of common Data Structures and Algorithms through real world examples
- Provide C++ software implementation of Data Structures and Algorithms covered in the course

Course Outline

Data Structures

Lesson #	Topic
0	Introduction
1	Arrays
2	Stacks
3	Queues
4	Linked Lists
5	Hash Tables
6	Trees
7	Heaps
8	Graphs

Algorithms

Lesson #	Topic
9	Time/Space Complexity
10	Sorting
11	Searching
12	Hashing
13	Dynamic Programming
14	String Matching/Parsing

Data Structures

Data Structures

- Special formats for organizing, processing, retrieving and storing data
- Data structures selection can help your code run more efficiently, both in time and space
- Data structures also provide uniformity, making your code easier to understand
- Common data structures are arrays, queues, stacks, trees, and more

Algorithms

Algorithms

- Special set of instructions designed to accomplish some task
- Algorithms take in 0-N inputs and can return 0-M outputs
- Algorithms are the building blocks of larger programs
- Common types of algorithms include searching, sorting and more